Marco Mazzuccheli | ENS Lyon
Title: Existence of global surfaces of section for reeb flows of closed contact 3-manifolds

Abstract: In this talk, based on joint work with Gonzalo Contreras, I will outline a proof of the existence of global surfaces of section for all Reeb flows of closed contact 3-manifolds satisfying the Kupka-Smale condition: non-degeneracy of the closed orbits, and transversality of the stable and unstable manifolds of the hyperbolic closed orbits. This result, in particular, settles the existence of global surfaces of section for the Reeb vector field of a C^infinity generic contact form on any closed 3-manifold, and even for the geodesic vector field of a C^infinity generic Riemannian metric on any closed surface. As an application, I will provide a new characterization of Anosov Reeb flows of closed contact 3-manifolds, which implies the C^2 structural stability conjecture for Riemannian geodesic flows of closed surfaces.